Space Weather Forecast

Issued on Sunday, 27 February 2022 at 12:24 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance R1/Minor radio blackouts and minor geomagnetic storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low in the last 24 hours with one common class flare observed. Two numbered unipolar and simple active regions are on the visible disc, located in the northern hemisphere near the centre of the visible disc. Plage regions in the southeast and northeast will continue to monitored for further developments, sunspots may well emerge within these regions. No Earth-directed Coronal Mass Ejections (CMEs) were observed in available imagery during the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind was initially at background levels but increased abruptly to slightly-elevated levels around 27/0630UTC, this corresponded with an increase in density and Interplanetary Magnetic Field. It was caused by the likely connection with a coronal hole fast wind. Resultant geomagnetic activity was Quiet (Kp 0-1) with an Active (Kp 4) interval between 27/0600-0900 UTC associated with the fast wind arrival.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is currently at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be low with a continuing chance of Common class flares. Risk of Moderate class flares is currently slight (10%), but with a probable increase as potential new regions rotate onto the disc.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are currently forecast. A series of coronal holes are expected to give occasionally faster solar winds during this period, with winds likely to exceed 500 km/s at times. Geomagnetic activity is expected to be Quiet to Unsettled, with a chance of Active periods, and a slight chance of G1/Minor Storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background, with no solar radiation storms expected through the period.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	10	10	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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